## Logarithms Q1 (24/6/23)

Show that 
$$ln(x - \sqrt{x^2 - 1}) = -ln(x + \sqrt{x^2 - 1})$$

## Solution

$$-ln(x+\sqrt{x^2-1}) = ln\left(\frac{1}{x+\sqrt{x^2-1}}\right)$$
$$= ln\left(\frac{1}{x+\sqrt{x^2-1}} \cdot \frac{x-\sqrt{x^2-1}}{x-\sqrt{x^2-1}}\right)$$
$$= ln\left(\frac{x-\sqrt{x^2-1}}{1}\right)$$